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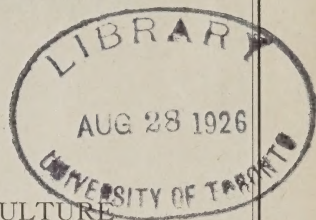


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BIRDS

A NATIONAL ASSET

VIEWS OF
PROVINCIAL MINISTERS OF AGRICULTURE



CANADIAN NATIONAL PARKS BRANCH
DEPARTMENT OF THE INTERIOR



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AN APPRECIATION OF THE VALUE OF BIRDS

By Hon. JOHN H. MYERS
Minister of Agriculture, Prince Edward Island

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THE NECESSITY FOR BIRD LIFE CONSERVATION

By M. CUMMING, B.A., B.S.A., LL.D.
Secretary for Agriculture, Nova Scotia

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INSECTIVOROUS BIRDS

Guardians of the Fields and Woods

By GEO. MAHEUX, M.A., I.F.
For Hon. J. E. Caron, Minister of Agriculture, Quebec

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BIRDS AS A NATIONAL ASSET

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For Hon. John Bracken, Minister of Agriculture and Immigration, Manitoba

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WHY SASKATCHEWAN PROTECTS ITS BIRDS

By Hon. CHAS. M. HAMILTON
Minister of Agriculture and Municipal Affairs, Saskatchewan

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SHOULD WE PROTECT THE BIRDS?

By F. M. RENDELL, Secretary of Agriculture
For Hon. Geo. Hoadley, Minister of Agriculture, Alberta

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BIRDS AND THEIR RELATION TO AGRICULTURE IN BRITISH COLUMBIA

By Hon. EDWARD DODSLEY BARROW
Minister of Agriculture, British Columbia

The Canadian National Parks Branch of the Department of the Interior, asked Provincial Ministers of Agriculture to give their views on the value of Birds. Their answers are given in this paper. If you think bird protection is unnecessary, read what they say.

AN APPRECIATION OF THE VALUE OF BIRDS

By Hon. JOHN H. MYERS, *Minister of Agriculture, Province of Prince Edward Island*

THERE is no subject in the field of natural science that is of greater interest than the important position occupied by birds in the great plan of organic nature.

The food relations of the birds are so complicated, and have such a far reaching effect upon other forms of life that the mind of man may never be able fully to grasp them. The position occupied by birds among the forces of nature is unique. Their structure fits them to perform the office of a swiftly moving force of police, large bodies of which can be assembled to correct disturbances caused by outbreaks of plant or animal life. A swarm of grasshoppers appears, or an irruption of field mice, and birds gather to the feast from far and near.

A study of the structure and habits of birds shows how well fitted they are to check excessive multiplication of injurious creatures or to remove offensive material. Birds are distinguished from all other animals by their complex feathered wings, the organs of perfect flight.

The utility of birds in suppressing outbreaks of other animals by massing at threatened points, is of no greater value in the plan of nature than is the perennial regulative influence exercised by them individually everywhere as a check on the undue increase of other forms of life.

While birds, insects, other animals and plants are constantly striving to increase their numbers, the creatures that feed upon them operate continually to check this undue multiplication.

The Hawks prey upon the smaller birds and mammals. The smaller birds and mammals feed on insects, seeds, leaves and other animal and vegetable food, each virtually endeavouring to gain strength and increase the numbers of their race at the expense of other living organisms.

Birds are classed as useful or injurious only as they affect man or his property. In an uninhabited country birds cannot be ranked as beneficial or harmful, good or bad, for there is no agriculture. With the beginning of agricultural practice all this is changed.

When man began to domesticate animals he faced individually a host of enemies. Wild animals and birds attacked his cattle, horses and sheep, or devoured their young. Insects stampeded his herds, or carried disease and death among them. His poultry were decimated by scores of rapacious animals; when he began to plant seeds and raise grain, both his growing and his garnered crops were attacked by a host of enemies, for now he had begun to disturb nature's balance and nature asserted herself in the effort to resume her interrupted sway.

Most of the animal and vegetable forms that he produces are at variance with those produced by nature and must be continually fostered and protected if they are to maintain their artificial character and excellence.

The beginning of agriculture was the first step towards civilization, and the necessity of remaining near his crops to guard them from their enemies compelled the primitive farmer to erect a permanent habitation. In many communities only a few years elapsed between the subjugation of the unbroken wilderness and the building of a farming town.

Insects introduced from foreign lands found a paradise in which to multiply in the areas planted year after year to the same crops. Having escaped their native enemies they had come to an abundance of food in a land where many of the insect eating birds and other insectivorous animals had been much reduced in number by the unwise policy of the settlers. Hence the rate of increase of imported insect pests has far exceeded that of the same insects in their native lands.

The enormous losses which have occurred in this country from the destruction of growing crops by insects must seem incredible to those who do not realize how vast are the number of insects, how stupendous their power of multiplication, how insatiable their voracity.

The number of insect species is greater by far than that of the species of all other living creatures combined, and were the progeny of one pair allowed to reproduce without check they would cover in time the entire habitable earth.

In order to give some idea of the powers of multiplication of the potato bug, the progeny of a single pair if allowed to increase without molestation, would in one season amount to over sixty millions.

In view of the dangers threatened by insect increase and voracity, how fortunate it is for the human race that so many counter checks are provided to prevent the multiplication of these destructive creatures

Hence the importance of the study of these natural counter checks, among which birds hold a high place. With the disappearance of our birds, the destruction of the natural wealth by insects forges to the front as a subject of vital importance. The logic of the situation is simple, short crops mean high prices. If ten per cent of our vegetable food supply is destroyed by insects, it is certain that we will feel it in the increased cost of living.

The insects that reduce our fruit crop attack every portion of the trees and its product. To destroy fruit is to take money out of the farmer's pockets, and to attack and injure the tree is like undermining his house. The annual losses occasioned by insect pests to forests and forest products in the United States has been estimated at no less than \$100,000,000.

There are other insect damages that relate to cattle, horses, sheep, and stored grain products of many kinds.

The millions of the insect world are upon us. The birds fight them for us and when the birds are numerous and have nestlings to feed the number of insects they consume is enormous. They require absolutely nothing at our hands save the privilege of being let alone while they work for us. In fighting the insects we have natural allies in the shore birds, woodpeckers, song birds, swallows and martins, certain hawks, owls and the bats. All these wage war at their own expense.

The farmer might just as well lose \$100 through a short crop as to pay out that sum in labour and material in spraying operations and yet we go on slaughtering our friends and allowing others to slaughter them.

From Halifax to Vancouver a deadly contest is being waged. The fruit-growers, farmers, and forest owners are engaged in a struggle with the insect hordes for the possession of the trees and crops. Some of these hordes are being fought with poisonous sprays, some are being killed by hand, and some are being ignored.

In view of the known value of the trees of our country each woodpecker is worth about \$20 in cash. Each nuthatch and chickadee is worth from \$5 to \$10.

Thousands of busy men and women are to-day striving hard to promote measures that will preserve the valuable birds of the world. They believe that we have no right to squander and destroy a heritage of priceless value which we have done nothing to create and which is not ours to destroy.

THE NECESSITY FOR BIRD LIFE CONSERVATION

By M. CUMMING, B.A., B.S.A., LL.D., *Secretary for Agriculture for the Province of Nova Scotia*

If any further evidence were needed regarding the value of birds to agriculture, such evidence would be forthcoming in abundance from Nova Scotia, which supports a fruit-growing industry of great magnitude and importance. The horticultural problems involved in actually growing the fruit, are of comparatively minor importance, but the problem of protecting the fruit from its insect enemies is acute. We cannot measure the value of the birds in this connection, but we do know their value to be enormous and we can form some slight idea of what conditions would be without them.

On a recently introduced European pest, the "apple sucker," four species of birds were observed feeding, viz., the American Redstart, the Chipping Sparrow, the Song Sparrow and the Yellow Warbler, and this was during the first year that the presence of the insect was discovered by man. Large numbers of other insectivorous birds are found in the orchard throughout the year diligently preying upon the myriad forms of insect life. Chickadees devour the eggs of cankerworms, tent caterpillars, and even the tiny black eggs of orchard aphids. They tear open and consume the tiny larvæ of leaf-miners from their brown hibernating cases, or seek out the overwintering codling worm from its silk-lined shelter beneath the bark. When epidemics of injurious species occur, Chickadees and Robins, Orioles and other insect-eating species take a heavy toll from the depredators. Downy Woodpeckers are constantly at work seeking out and destroying injurious insects that infest the trees, dragging forth hibernating codling moths from their burrows or tearing open the tough cocoon of the *Cecropia* moth and devouring its contents.

Various insectivorous birds are just as valuable against pests of general farm crops. The Robin which has often been condemned for its depredations to cultivated fruits, feeds largely upon wild fruits and injurious insects, and is one of the most useful of our native birds. Indeed when the matter is investigated, it is doubtful if even the despised Crow does not have a comfortable balance on the credit side of the ledger, while only last season an incipient outbreak of grasshoppers in one of the Maritime Provinces was cleared up by great flocks of the equally despised Blackbirds.

Anyone who takes the trouble to study the matter, even superficially, will come to the conclusion that these are but isolated examples of the thousands that might be cited and that not only is it desirable for us to protect our bird life, but that we must do so in the interests of our own preservation. Not only are the birds important agents in the control of injurious insects, they are the *most* important agents, for in adding to their diet a greater proportion of a species of insect that happens to be epidemic at any one time, they do not neglect the other items on their varied diet. They do not, therefore, while controlling one epidemic, encourage the outbreak of others, nor do they, by unduly reducing their own food supply, endanger their own existence, as do many insect parasites, that are capable of subsisting on only a single insect or, at most, upon a few related species. Birds exercise a steady and constant check upon these inveterate foes of the farmer. They serve to prevent altogether the undue presence of many species and when an outbreak does develop, birds of the most varied character and habits immediately give it their special attention, but at the same time it will be found that the other insects upon which they normally feed are still consumed in the same ratio as before.

The importance of full protection for our birds surely requires no argument in this generation. Governments have brought to bear upon the preservation of bird life the full force of law and have even made it the subject of international treaty. It is clearly in the interests of the entire human family to prevent in future the work of extermination that has taken from us forever the Passenger Pigeon and other once numerous species and is threatening still others with complete destruction. "Each of these species is the end product of the evolution of ages. When once lost . . . it can never be restored. We are not wise enough nor foresighted enough to know whether the qualities lost with it would ever be of use to our posterity. We are now only at the beginning of our knowledge of plant and animal resources." (Needham.)

INSECTIVOROUS BIRDS GUARDIANS OF THE FIELDS AND WOODS

By GEO. MAHEUX, M.A., I.F., *for Hon. J. E. Caron, Minister of Agriculture
for the Province of Quebec*

Among the most ruthless enemies of agriculture, insects must be mentioned in the first place. Not a year passes without these small creatures coming in innumerable legions to ravage some part of our cultivation. This fact becomes very evident to all at the time of great plagues, as when the caterpillars or grasshoppers ruin crops that are full of promise, or strip the leaves from magnificent trees. However, though less apparent, the evil exists all the same in the years which follow, as statistics show that the injurious insects cost the province of Quebec the great sum of \$10,000,000 annually.

How would it be if the insects existed in a state of plague continually? In the space of two or three years, the damage would increase to a hundred million dollars, and famine would be close at hand. Fortunately, Providence has decreed that these invasions be only transitory. It has put to work several factors which tend, without ceasing, to bring down to the normal figure the number of the enemies of cultivation. To maintain this equilibrium, indispensable for the success of the crops, we have no more powerful auxiliary than our birds.

The bird is an active and vigilant ally that is always in the breach. Without ceasing it harasses the enemy and makes immense gaps in his ranks. The more numerous the birds, the more rapid is the destruction of the ravaging insects.

As the insect is the most natural food for the bird, it is the dainty sought after and greedily devoured; and that is why a thousand million insects find death every year through the beak of the bird.

Scientists inform us that if the stomach of a field bird is opened it is found to be one-half or three-quarters full of the remains of insects. And this is true to such an extent that even the birds which we consider as enemies, as for example the Crow, swallow numerous insects and feed on grain only at the time of seeding.

No person has attempted to calculate the number of injurious insects eaten by the birds of our country, but it is easy to imagine what an enormous number of victims is required to satisfy the appetite of a bird for a single season.

Without the assistance of these inhabitants of the air, so generously given to us, it would be of little use to sow, for the insect ravagers would have devoured everything before harvest time.

We ought, therefore, to favour by every means the rapid multiplication of these valuable auxiliaries of the farmer.

How then can it be explained that so useful an animal should be massacred by those very persons who ought to protect it? What is to be thought about those ignorant hunters who wantonly massacre these precious allies of agriculture?

What is to be thought of those cruel children who, during the summer wander about the woods in order to rob birds' nests, to destroy the eggs which a feeble mother cannot protect, to kill the little ones who are unable to defend themselves?

What is to be thought of those persons with diseased minds who seem to be possessed with a mania for killing without any reason the most inoffensive creatures that they meet?

The least that can be said of any of them is that they are working against their own interest; and for a great number, who have not even the excuse of ignorance, it must be plainly declared that they are committing an unjust and criminal act every time that they do this. Let us not forget that, in the first place, they are violating the laws of the country and that they are exposing themselves to severe penalties; then, without any necessity, they are destroying creatures that are necessary for abundant agricultural production. What injury have the birds done to them? It would embarrass them to try to tell.

Let us understand our interests better and be more humane; let us exemplify our precepts and let us train up a generation which will know better how to utilize the instruments that Providence has put at our disposal.

We must love the birds for the good that they do us; in return they exact from us only liberty to fly about in the air; they do not ask for any other recompense than to be a pleasure to the eye and a joy to the heart.

Loving the birds, it is also well to aid them. Let us facilitate the multiplication of these auxiliaries by distributing here and there small houses which will serve them for nests, driving away their enemies and feeding them when necessary.

By so doing we will have the consciousness of working for a good cause. Let it not be forgotten: the birds are our friends, woe to those who destroy them.

BIRDS AS A NATIONAL ASSET

By V. W. JACKSON, Professor of Biology, for Hon. John Bracken, Minister of Agriculture and Immigration for the Province of Manitoba

Our food, clothing and shelter depend upon living things—crops, live stock and forests, and every living thing bears a biotic relation to or dependence upon some other living thing. This stable relationship is often called the balance of nature. If the balance is disturbed there is a quick readjustment, and balance is restored again. If some rapid spreading disease kills off the rabbits, then large Hawks missing their old food supply move southward and attack the next easiest prey—the Prairie Chicken. The rabbits that survive are immune and soon increase rapidly in the absence of the Hawks, and in seven or eight years they are again so conspicuously plentiful that the Hawks return to their old haunts and the balance is restored. Another historic cycle of balance is that which shows clover seed to have a biotic relation to Hawks. Hawks, by destroying mice, destroy the enemies of bumble bees, which then increase rapidly in numbers and more clover is fertilized and more seed set. You will notice that it is birds which keep the balance by flying from one side of the scales to the other by migrating to where insects or other pests are most plentiful.

It is very easy to disturb the balance of nature upon which agriculture depends. If birds are driven away or destroyed, then the insects upon which they feed will increase, often to such extent as to become a plague and make agriculture impossible as they have in treeless and birdless Egypt: what a harvest the plagues of locusts would have been for birds, but there were no birds to keep them in check. No trees, no birds, no crops.

Blackbirds, Plover, Quail and Prairie Chicken, have rescued Nebraska from crickets and grasshoppers many times. Meadowlarks, Kingbirds, Cuckoos, Doves, Killdeer, Terns and Gulls have saved Manitoba from the devastating army worm which, on several raids, never got farther than the treeless part of the southwest corner. And more recently the news of grasshopper raids in this corner reached the Terns and the Gulls on the lakes and they went to this place of plenty in millions and feasted and fattened. Observing farmers said they filled up and then flew to the hills to vomit up and return and fill up again—just for the love of hunting. As a matter of fact the Gulls were disgorging the shells of the digested insects, and getting ready for another meal. The Franklin's Gull had stopped the plague in a day or so. I have a photo showing thousands in one field following a ploughman. Having always been protected for the visible service they render, they have grown friendly and closely follow the ploughman, greedily picking up the cutworms and wireworms exposed in the freshly turned furrow.

The water fowl of the Mississippi valley save it from plagues of the Rocky Mountain locust. It is so easy for birds to migrate to better feeding grounds that they are well suited to keep the balance of nature. The last year or so, crickets have been increasing in the Red River valley until they threaten to become a pest too, but the birds will soon find it out and come to the rescue.

We have little hope of keeping the balance of nature, except by the agency of birds. Our greatest pests are insects, and insects are the food of birds. Young birds will eat from half to twice their weight of insects per day. Robins take 5 ounces of insects, worms and berries per day. A Nighthawk's meal was found to consist of 340 grasshoppers, 52 bugs, 3 beetles, 2 wasps and a spider. Even little Chickadees eat 200 to 500 insects a day, and most birds feed their young at least 100 insects a day.

Here are some daily menus of birds—

The *Northern Flicker*—5,000 ants; 1,000 chinch bugs.

The *Nighthawk*—1,000 potato bugs, when in Winnipeg, or 400 grasshoppers when on the prairie.

The *Rose-breasted Grosbeak*—500 potato bugs.

The *Meadowlark*—100 cutworms, 100 grasshoppers, 200 ground beetles, 50 caterpillars, 2,000 weed seeds for dessert.

The *Kingbird*—flies, mosquitoes, locusts, beetles, crickets and moths. This sporty bird is accused of even taking honey bees, but in 634 stomachs examined in an extended investigation covering a wide area only 22 contained bees, less than 3% of the Kingbirds were bee robbers and of the 61 bees captured, 51 were drones.

The *Bluebird*—grasshoppers, beetles, caterpillars.

The *Catbird*—beetles, ants, crickets, grasshoppers.

The *House Wren*—caterpillars, bugs, weevils, spiders, plant-lice.

The *Butcher Bird*—grasshoppers, locusts, moths and mice.

Killdeer—beetles, grasshoppers, caterpillars, ants, mosquitoes, dragon-flies, centipedes, spiders, wood ticks, snails, slugs, grubs, cutworms, horse flies and cattle ticks.

Franklin's Gull—when the grasshoppers were gone one stomach was found to contain 984 ants, 327 dragon-flies, 82 beetles, 87 bugs and 42 cutworms.

Swallows—flies, mosquitoes, beetles, ants and chinch bugs. The small arboreal Warblers, Vireos and Creepers, eat leaf rollers, cankerworms, bark beetles and plant lice, and thus protect the tree from these pests.

So great is the destruction of insects by birds that we may well wonder how we could exist without them. Charles Reed figures that there are five birds per acre in Massachusetts, and that in this small state the insectivorous birds devour 21,000 bushels of insects per day. The Red River Valley is about the same size as Massachusetts and no doubt our bird population is as great and the destruction of insects about the same. Now, 21,000 bushels of insects would fill an elevator 50 by 60 feet and 70 feet high, or to put it in another way it means twenty carloads of insects per day destroyed by the birds of the Red River Valley.

WHY SASKATCHEWAN PROTECTS ITS BIRDS

By Hon. CHAS. M. HAMILTON, *Minister of Agriculture and Municipal Affairs
for the Province of Saskatchewan*

One of the great problems confronting agriculturists in Saskatchewan, as elsewhere, is the ravages of the insect pest. The loss sustained in the destruction of cereal crops, in the defoliation of our forests and our shade and ornamental trees (as well as the attacks upon the bodies of the trees by the "borers"), in the denuding of our flower and vegetable gardens, and the destruction of our vines and small fruits, runs into many millions of dollars annually.

It is true that some varieties of insects are beneficial, and it is also true that insects prey upon other insects causing the destruction of countless numbers. The rate of increase, however, in the insect world is almost unbelievably rapid, the progeny of a single pair of some species, unmolested, numbering many millions in a season. We have it on the authority of eminent economic ornithologists that, but for one factor, the increase of insect life would be so appalling that in a short time all vegetation would be destroyed. That "one factor" is our wild bird life.

Ornithologists, as the result of years of careful study, and of thousands of experiments have established a number of surprising facts. It is known, of course, that the food of nestling birds consists almost entirely of insects. It is found that young birds consume from one-half to almost twice their own weight of food daily; that while in the nest they are fed upwards of two hundred and fifty times a day; and that each family in a nest consumes on an average five hundred insects a day.

As a result of careful investigation by some hundred competent observers, it is estimated, conservatively, that in America we have one pair of birds per acre of land, and one very reliable ornithologist has estimated that in the State of Massachusetts the birds devour 21,000 bushels of insects each day during the summer season. On this basis over 200,000 bushels of insects are devoured daily during the summer months by Saskatchewan birds. This is probably far below the actual quantity of insects devoured by our birds each day and is only quoted because it gives some idea of the surprising economic value of our wild bird life.

The Department of Agriculture in Saskatchewan is very conscious of the great economic value of our feathered friends. A word might be said regarding that other value, sometimes termed the "aesthetic" value of our wild birds, and the appeal here would be especially directed to our boys and girls. The study of the beautiful has always a refining, uplifting influence, and in all the realm of nature there is probably nothing else quite so beautiful as our wild birds. Many of them are beautiful in colour, many beautiful in song, and all are beautiful in form and are the perfection of beauty in motion. The boy or girl who becomes interested in wild birds, making the acquaintance of a goodly number of varieties, recognizing some by colour and form, others by song, and many by habits of flight, will undoubtedly receive an uplifting, refining influence by reason of that interest and study.

It is gratifying to note in our province an ever-increasing interest in this national asset. Many requests come to the department for addresses on the subject of bird life, and so far as possible we are glad to respond, with a view to stimulating interest, especially among our young people.

During the year ending April 30, 1923, about eighty illustrated bird talks were given to over 16,000 people, of whom at least 75 per cent were boys and girls of school age. The aim of these talks has been to show how fascinating is the study, how essential are the birds, and how in various ways they may be protected and their numbers increased.

In the wild life of our country a great heritage has been bequeathed to us, but it is a heritage in entail. We are but the trustees of the estate, and if by reason of carelessness or indifference we permit the heritage to be dissipated we will have proved disloyal to our trust and will be accounted unfaithful stewards.

SHOULD WE PROTECT THE BIRDS

Prepared by F. M. RENDELL, Secretary of Agriculture, for Hon. Geo. Hoadley,
Minister of Agriculture for the Province of Alberta

Of all the various forms of wild life, there is probably none of so great an economical value to the people of this province, and to the farmers more particularly, as our birds.

Certain species of birds consume large quantities of insects, which if not controlled would eventually increase to such numbers as to destroy all vegetation. There is probably no form of animal life which multiplies so rapidly as insects, and without the birds to assist him man would find it much more difficult to prevent the destruction of farm crops. It is estimated that the agriculturists of Canada suffer an annual loss of millions of dollars by insects. In recent years, Alberta has expended upwards of five hundred thousand dollars in destroying grasshoppers. Many beautiful groves of trees have been destroyed or damaged by the hairy caterpillar. Gardens have been damaged or destroyed by the beet web worm (sometimes called the army worm). Spermo-philos (gophers) and field mice annually cause a loss to grain growers of hundreds of thousands of dollars.

For the purpose of this article we will deal with four classes of birds. Game Birds, Song Birds, Insectivorous Birds and Birds of Prey.

GAME BIRDS

Game birds are those which are usually pursued for the purpose of sport or food. The more common species, being ducks, geese, swans, cranes, rails, coots, snipe, plover and grouse. Those for which an open season is provided in Alberta are as follows: twenty-four species of wild duck, four species of wild geese, Virginia Rail, American Coot (mud hen) Wilson's Snipe (Jack-snipe) Greater Yellowlegs, Lesser Yellowlegs, Black-bellied Plover, Golden Plover, Richardson's Grouse, Canada Grouse, Franklin's Grouse, Ruffed Grouse (partridge), Willow Ptarmigan, Rock Ptarmigan, White-tailed Ptarmigan, Sharp-tailed Grouse (Prairie Chicken), Sage Grouse, Pinnated Grouse and Grey Partridge. The latter also called Hungarian Partridge, introduced from Europe, can now be classified as an Alberta bird. While some of the game birds are possibly not of great economic value to agriculture, our Sharp-tailed Grouse (Prairie Chicken) and Grey Partridge are unquestionably great destroyers of weeds and insects. From examinations made of the stomachs of Sharp-tailed Grouse killed in grain fields with the grain still in stook, the results were as follows:—

- | | |
|-----------------------------|----------------------------|
| 1. 1 Mosquito | 4. 1 Fly |
| 148 Berries | 2 Lady bugs |
| 1,866 Wild Buckwheat seeds | 320 Wheat |
| 1 Ant | 1,028 Wild buckwheat seeds |
| 58 Juniper berries | 233 Mustard |
| 148 Rose Leaves | 36 Shepherd's purse leaves |
| 14 Moss Leaves | 218 Miscellaneous leaves |
| 2. 859 Wild buckwheat seeds | 5. 507 Kernels of wheat |
| 1 Berry | 652 Wild buckwheat seeds |
| 30 Leaves | 250 Juniper berry seeds |
| | 93 Wheat hulls |
| 3. 56 Berries | 362 Miscellaneous leaves |
| 100 Kernels of wheat | |
| 1,700 Wild buckwheat seeds | |
| Miscellaneous leaves | |

SONG BIRDS

The aesthetic value of song birds is worthy of consideration and it may be added that they destroy great quantities of weed seeds and insects.

INSECTIVOROUS BIRDS

These birds are among the most valuable, from an economic standpoint, of any of the birds which frequent our province. The vast quantities of worms and insects destroyed by these species greatly assist the farmer in his agricultural pursuits. Without their assistance he would undoubtedly have a serious problem on his hands in his efforts to combat the inroads of pests. This is more readily understood when we consider the millions of dollars which have been expended in Canada for the purchase of poisons of various kinds for the spraying of fruit trees, the destruction of potato beetles, grasshoppers and other forms of insect life.

BIRDS OF PREY

Vultures, hawks and owls. Very few of these are considered detrimental to agriculture. The vulture, while not plentiful in Alberta, is conceded to be a great scavenger. Cooper's Hawk, Goshawk, Duck Hawk and the Pigeon Hawk are considered destructive to game birds and poultry. They are, however, beneficial to a great extent, inasmuch as they destroy *Spermophiles* (gophers), field mice, etc.: while the other species of hawks are highly beneficial, feeding almost entirely on destructive mammals, in addition to various insects. Owls are even more beneficial than hawks and the Hawk Owl is the only owl which it is legal to kill under the Alberta Game Act. The Great Horned Owl is considered equally as destructive. Other species are highly beneficial inasmuch as they destroy great numbers of mice and other rodents. Owing to the inability of most shooters to distinguish between the beneficial and destructive species of hawks and owls, it is not thought wise to advocate the destruction of those species which are considered detrimental to agriculture. Although no harm would be caused by those who are able to recognize the destructive species, a great majority of the shooters would simply classify them as hawks or owls and shoot beneficial species believing that they were protecting other valuable birds by doing so.

There are several species of birds not classified above, among which are the gulls and terns. These birds are great destroyers of insects, the gulls more particularly. Gulls are frequently found a considerable distance from water, on the prairie, picking up grasshoppers, or on cultivated lands feeding on insects and worms. The gull is also a great scavenger, consuming large quantities of dead fish and other offal found on the shores of lakes and streams.

There is probably no bird that is not to some extent beneficial, consequently in killing those species which we believe to be more destructive than beneficial we should at least be acquainted with their habits before doing so.

I quote herewith a few lines from Longfellow's Poem entitled "The Birds of Killingworth," which depicts in a very few words the possible conditions if our beneficial species of birds were destroyed or reduced in numbers to too great an extent.

"Think of your woods and orchards without birds!
Of empty nests that cling to boughs and beams
As in an idiot's brain remembered words
Hang empty 'mid the cobwebs of his dreams!
Will bleat of flocks or bellowing of herds
Make up for the lost music, when your teams
Drag home the stingy harvest, and no more
The feathered gleaners follow to your door?"

What! would you rather see the incessant stir
Of insects in the windrows of the hay,
And hear the locust and the grasshopper
Their melancholy hurdy-gurdies play?
Is this more pleasant to you than the whir
Of meadow-lark, and her sweet roundelay,
Or twitter of little field-fares, as you take
Your nooning in the shade of bush and brake?

You call them thieves and pillagers; but know,
They are the winged wardens of your farms,
Who from the cornfields drive the insidious foe,
And from your harvests keep a hundred harms;
Even the blackest of them all, the crow,
Renders good service as your man-at-arms,
Crushing the beetle in his coat of mail,
And crying havoc on the slug and snail."

BIRDS AND THEIR RELATION TO AGRICULTURE IN BRITISH COLUMBIA

By Hon. EDWARD DODSLEY BARROW, *Minister of Agriculture for the Province
of British Columbia*

Although it has been known for a long time that birds are of considerable importance in relation to agriculture, there is a tendency to discuss the harm they do rather than the good. It depends almost entirely upon what it eats whether a bird is injurious or beneficial. Therefore, in species which are unusually abundant or which depend in part for food upon the crops of the farmer, the character of their food naturally becomes a very practical question.

When crows or blackbirds are seen in numbers about cornfields or if woodpeckers are noticed at work in an orchard, they are generally accused of doing harm. Careful investigation, however, often shows that they are actually destroying noxious insects; and also that even those which do harm at one season may compensate for it by eating insect pests at another. The majority of land birds eat insects at all times, and during the breeding season most kinds live largely on this food, and rear their young upon it. Many birds eat insects when they are plentiful, which at other times they do not touch, and even birds of prey at times resort to this diet.

Within certain limits birds feed upon the kind of food which is most agreeable to them, thus the insectivorous birds eat the insects that are most easily obtained, and it is not probable that a bird habitually passes one kind of insect to look for another which is more appetising. I do not know of any bird in the province of British Columbia which is plentiful enough to be harmful to the farmer, not even the very much despised crow. The latter bird for many months of the year is really of great benefit to agriculturists on account of the large number of insects it eats. It follows the farmer during ploughing operations and eliminates many insects that may in other portions of the country be destroyed by extreme frosts not usual upon the Pacific slopes of British Columbia.

The Sea Gull is one of the best friends of the farmer and should be well protected in British Columbia, as this bird has the habit, during the fall, winter and spring, of going inland from the immediate coast and other places and then it follows the plough devouring many insects during those periods of the year, just as the Crow does.

All migratory birds, whether insectivorous or seed eaters, should be well protected. Many of the insectivorous birds are to be found in the vicinity of orchards working from daylight to dark and thereby saving the horticulturists a considerable amount of money which would have to be spent in cleaning trees of insect pests. Farmers would do well to erect nesting sites for birds in the vicinity of their farms and undoubtedly they would find them of great benefit.

The majority of hawks and owls are beneficial to the farmer, although at times it may appear that some of them do a considerable amount of damage to the poultry in the barn-yards. It should, however, be borne in mind that these birds of prey skirt around hedges and fences, destroying hundreds of rodents which if not kept in check would soon devour unlimited quantities of grain. I would advise any farmer who may kill birds doing what he considers harm to his produce, to examine closely the contents of their stomachs; possibly he would then change his mind as to whether they were a harmful species or not.

Woodpeckers have been brought into disgrace very often by people who do not know their habits. The woodpeckers are among the best of the birds for the protection of trees from insect pests. The woodpecker takes care of the forests, and with his well formed bill is able to tap on the trees and find many boring insects which would otherwise destroy the orchards and forests. This bird does not attack the tree simply to tear a hole, but when he is tapping he is there for insects.

No doubt some of the game birds do a certain amount of damage to agriculture at times, but the farmer and the horticulturist must remember that there is only a short period throughout the year when these birds can do any material damage. For the rest of the year they are carrying on their work, and cleaning the ground of many injurious insect pests.

It is to be hoped that the farmers and horticulturists of this province will consider the birds their friends and not their foes.

Copies of this pamphlet and others issued to further bird protection in Canada as well as copies of the Migratory Birds Convention Act may be obtained from the Commissioner of Canadian National Parks, Department of the Interior, Ottawa—M.B.L., 23, 1925.

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